

CLAIMS

WE CLAIM:

1. A method of determining bulk refractive indices of flowable liquids comprising the steps of:

in any functional order practicing steps a, b and c:

- a) providing a quantity of flowable liquid;
- b) providing a rigid or semi-rigid object comprising two sides which is roughened on one side thereof;
- c) providing a source means of electromagnetic radiation, a sample supporting stage and detector means;
- d) covering the roughened side of said rigid or semi-rigid object, with a thin film of said flowable liquid;
- e) placing said rigid or semi-rigid object which has been covered with a thin film of said flowable liquid on said roughened side thereof, onto the sample supporting stage with said thin film of flowable liquid being directly accessible;
- f) causing said source means of electromagnetic radiation to provide a beam of electromagnetic radiation and directing it to be incident upon and reflect from said thin film of flowable liquid on said roughened side of said rigid or semi-rigid object, and then enter said detector means such that it produces an output in response thereto;

g) analyzing resulting detector means output to the end that bulk refractive indices of the thin film of flowable liquid are determined;

said method being characterized in that the flowable liquid is flowable before, during, and remains so after practice thereof.

2. A method as in Claim 1, in which the step of providing a rigid or semi-rigid object comprising two sides further involves roughening a second side thereof.

3. A method of determining the bulk refractive indices of flowable liquids as in Claim 1, in which the thin film of flowable liquid on said roughened side of said rigid or semi-rigid object is oriented to face in a direction selected from the group consisting of:

upward or downward;
laterally; and
in a direction between facing vertically and laterally.

4. A method of determining bulk refractive indices of flowable liquids comprising the steps of:

in any functional order practicing steps a, b and c:

- a) providing a quantity of flowable liquid;
- b) providing a rigid or semi-rigid object comprising two sides which is roughened on at least one side thereof;
- c) providing an ellipsometer or polarimeter system which comprises:

source means of electromagnetic radiation:

polarizer means;

sample supporting stage;

analyzer means;

detector means;

d) covering the roughened side of said rigid or semi-rigid object, with a thin film of said flowable liquid;

e) placing said rigid or semi-rigid object which has been covered with a thin film of said flowable liquid on said roughened side thereof, onto the sample supporting stage of said ellipsometer system with said thin film of flowable liquid being directly accessible;

f) causing said ellipsometer or polarimeter system source means of electromagnetic radiation to provide a beam of electromagnetic radiation and directing it to pass through said polarizer, be incident upon and reflect from said thin film of flowable liquid on said roughened side of said rigid or semi-rigid object, pass through said analyzer and then enter said detector means such that it produces an output in response thereto;

g) analyzing resulting detector means output to the end that bulk refractive indices of the thin film of flowable liquid are determined;

said method being characterized in that the flowable liquid is

flowable before, during, and remains so after practice thereof.

5. A method as in Claim 4, in which the step of providing a rigid or semi-rigid object comprising two sides further involves roughening a second side thereof.

6. A method of determining the bulk refractive indices of flowable liquids as in Claim 4, in which the thin film of flowable liquid on said roughened side of said rigid or semi-rigid object is oriented to face in a direction selected from the group consisting of:

- upward or downward;
- laterally; and
- in a direction between facing vertically and laterally.

7. A method of determining the bulk refractive indices of flowable liquids as in Claim 1, in which the thin film of flowable liquid on said roughened side of said rigid or semi-rigid object is oriented to face laterally.

8. A method of determining the bulk refractive indices of flowable liquids as in Claim 4, in which the thin film of flowable liquid on said roughened side of said rigid or semi-rigid object is oriented to face laterally.

7. A method of determining the bulk refractive indices of flowable liquids as in Claim 1, in which the thin film of flowable liquid on said roughened side of said rigid or semi-rigid object is oriented to face up or down.

8. A method of determining the bulk refractive indices of flowable liquids as in Claim 4, in which the thin film of

flowable liquid on said roughened side of said rigid or semi-rigid object is oriented to face up or down.

9. A method of determining the bulk refractive indices of flowable liquids as in Claim 1, in which the viscosity of the flowable liquid is within a range of 0.01 to 17,000 centipoise, both before and after practice of said method.

10. A method of determining the bulk refractive indices of flowable liquids as in Claim 4, in which the thin film of flowable liquid on said roughened side of said rigid or semi-rigid object is oriented to face up or down.

11. A method of determining the bulk refractive indices of flowable liquids as in Claim 1, in which the viscosity of the flowable liquid is within a range of 0.01 to 17,000 centipoise, both before and after practice of said method; and in which the thin film of flowable liquid on said roughened side of said rigid or semi-rigid object is oriented to face laterally.

12. A method of determining the bulk refractive indices of flowable liquids as in Claim 4, in which the viscosity of the flowable liquid is within a range of 0.01 to 17,000 centipoise, both before and after practice of said method; and in which the thin film of flowable liquid on said roughened side of said rigid or semi-rigid object is oriented to face laterally.

13. A method of determining the bulk refractive indices of flowable liquids as in Claim 1, in which the low and high temperature range limits are where the thin film of flowable liquid on said roughened side of said rigid or semi-rigid object freezes and evaporates or the object melts.

14. A method of determining the bulk refractive indices of

flowable liquids as in Claim 4, in which the low and high temperature range limits are where the thin film of flowable liquid on said roughened side of said rigid or semi-rigid object freezes and evaporates or the object melts.